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NS MAYPORT
5090.3a

QUARTERLY MONITORING REPORT GROUNDWATER MONITORING AT BUILDING 1587
FOURTH QUARTER 2000 NS MAYPORT FL
7/1/2001
CH2M HILL

Quarterly Monitoring Report

**Groundwater Monitoring at Building 1587
4th Quarter 2000**

October 1 – December 31, 2000

**Naval Station Mayport
Mayport, Florida**

Revision No. 01

**Contract No. N62467-98-D-0995
Contract Task Order No. 0015**

Submitted to:

**U.S. Naval Facilities
Engineering Command
Southern Division**

Prepared by:




CH2MHILL
Constructors, Inc.

**115 Perimeter Center Place, N.E.
Suite 700
Atlanta, GA 30346**

July 2001

This Quarterly Monitoring Report Revision 01 for Groundwater Monitoring at Building 1578, Naval Station Mayport, was prepared under the direction of a Florida registered professional engineer.



Matthew Haupt, P.E.
Registration Number 55934

7/27/01

Date

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Acronyms

bls	below land surface
°C	degrees Celsius
CCI	CH2M HILL Constructors, Inc.
COC	contaminant of concern
CTO	Contract Task Order
DO	dissolved oxygen
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
GCTLs	Groundwater Cleanup Target Levels
HLA	Harding Lawson Associates
J.A. Jones	J.A. Jones Environmental Services Company
µg/L	micrograms per liter
mg/L	milligrams per liter
mS/cm	millisiemens per centimeter
mV	millivolts
NA	not analyzed
NAVFAC	Naval Facilities Engineering Command
NS	Naval Station
NTU	nephelometric turbidity units
ORP	oxidation/reduction potential
RAP	Remedial Action Plan
SCTL	Soil Cleanup Target Levels
SPLP	Synthetic Precipitate Leaching Procedure
TRPH	total recoverable petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank

1.0 Introduction

CH2M HILL Constructors, Inc. (CCI), with J.A. Jones Environmental Services Company (J.A. Jones), have been contracted by the Department of the Navy, Southern Division Naval Facilities Engineering Command (NAVFAC), to provide groundwater monitoring services at Building 1587, Naval Station (NS) Mayport, Jacksonville, Florida, under Response Action Contract No. N62467-98-D-0995, Contract Task Order No. (CTO) 0015. The purpose of this Quarterly Monitoring Report is to provide a summary of activities performed at the site during the period of October 1 to December 31, 2000.

1.1 Objective

The objective of the groundwater monitoring program at Building 1587 is to collect analytical data for evaluation of the natural attenuation of the groundwater contaminant of concern (COC), benzene.

1.2 Site Background

Over the years, Number 2 fuel oil from a 4,000-gallon underground storage tank (UST) utilized to heat the Bachelor's Enlisted Quarters, Building 1587 at NS Mayport contaminated subsurface soils at the site. Southern Division, NAVFAC performed sampling and analysis of the site to determine the nature and extent of the contamination. In April 1995, the UST was removed with 27.11 tons of excessively contaminated soil (CCI, 2000). A new 4,000-gallon UST and dispensing system were installed in July 1995 and put into service in August 1995. An estimated total of 25 tons of excessively contaminated soil remained at the site following the UST removal (Harding Lawson Associates [HLA], 1999).

HLA prepared a Remedial Action Plan (RAP) in February 1999 outlining the actions necessary to remediate the remaining petroleum-contaminated soils in compliance with the Florida Department of Environmental Protection (FDEP) Cleanup Program, Chapter 62-770 of the Florida Administrative Code (FAC). The RAP identified excavation to address the petroleum-contaminated soil and natural attenuation to address the groundwater contamination. The COCs at the site included: for soil, benzo(a)anthracene and total recoverable petroleum hydrocarbons (TRPH); for soil leaching, total xylenes and TRPH; and for groundwater, benzene (CCI, 2000).

CCI/J.A. Jones, in accordance with the RAP prepared by HLA, excavated the area of petroleum-contaminated soil from November 29, 1999, to December 15, 1999, and removed and disposed of 19.85 tons of petroleum-contaminated soil. Post-excavation confirmation sampling identified TRPH-contaminated residual soils on the northwest and southwest sidewalls at a depth of approximately 7 feet below land surface (bls). This soil was not removed due to concerns regarding undermining the Building 1587 foundation. The analytical results for TRPH exceeded the FAC 62-770 Table II, Direct Exposure I (residential) and Leachability Soil Cleanup Target Levels (SCTLs); therefore, both of the samples were

analyzed according to the Synthetic Precipitate Leaching Procedure (SPLP). The results of the SPLP TRPH analysis were below FAC 62-770 Table I, Groundwater Cleanup Target Levels (GCTLs), indicating the TRPH is not leachable (CCI, 2000).

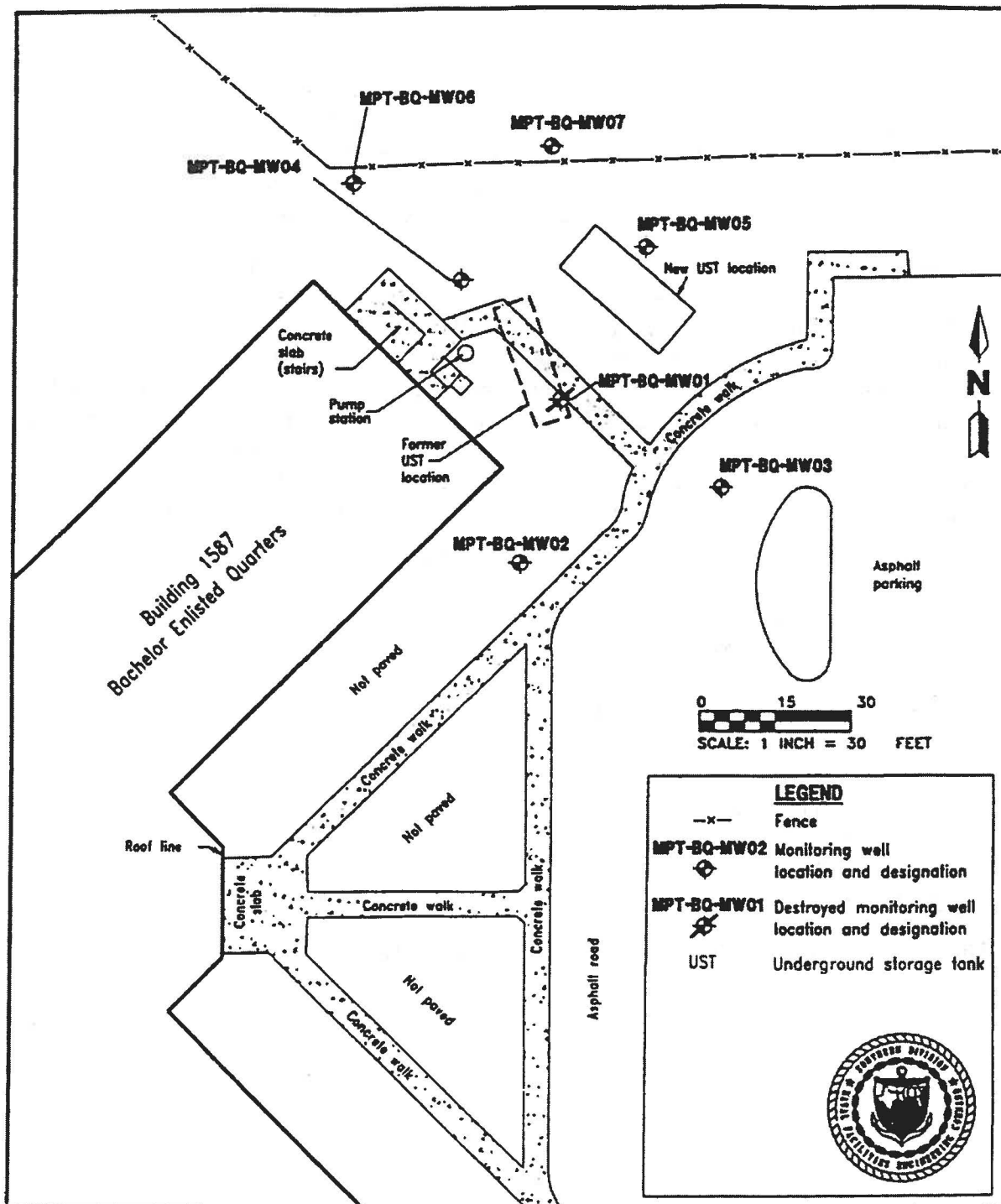
2.0 Groundwater Monitoring Results

CCI/J.A. Jones conducted quarterly groundwater monitoring activities at Building 1587 on December 14, 2000, in accordance with the requirements of Response Action Contract No. N62467-98-D-0995, CTO No. 0015. Groundwater samples were collected from four onsite monitoring wells identified as MPT-BQ-MW02, MPT-BQ-MW04, MPT-BQ-MW05, and MPT-BQ-MW07. Monitoring well locations are shown on Figure 2-1.

Groundwater samples collected from monitoring wells MPT-BQ-MW04, the source area monitoring well, and MPT-BQ-MW07, the downgradient monitoring well, were laboratory analyzed for benzene by U.S. Environmental Protection Agency (USEPA) Method 602. Groundwater samples collected from monitoring wells MPT-BQ-MW02, MPT-BQ-MW04, MPT-BQ-MW05, and MPT-BQ-MW07 were laboratory analyzed for methane by USEPA Method 8015 Modified. The groundwater laboratory analytical results are summarized in Table 2-1. In addition, natural attenuation field data was collected from monitoring wells MPT-BQ-MW02, MPT-BQ-MW04, MPT-BQ-MW05, and MPT-BQ-MW07 during the quarterly monitoring event. The collected natural attenuation field data included:

- Depth to water/product by oil/water interface probe
- Temperature by Direct Read Meter
- pH by Direct Read Meter
- Turbidity by Direct Read Meter
- Dissolved Oxygen (DO) by Direct Read Meter
- Conductivity by Direct Read Meter
- Carbon Dioxide by HACH Field Test Kit
- Alkalinity by HACH Field Test Kit
- Ferrous Iron by HACH Field Test Kit
- Nitrate by HACH Field Test Kit
- Sulfate by HACH Field Test Kit
- Oxidation/Reduction Potential (ORP) by Direct Read Meter

The natural attenuation field data are summarized in Tables 2-2 and 2-3.



K:\075361\07536-16\06\07536517.DWG VC-VC 07/05/99 16:39:08 AutoCAD R14

Figure 2-1
Monitoring Well Location Diagram
Quarterly Monitoring Report, Building 1587
U.S. Naval Station
Mayport, Florida

TABLE 2-1
Groundwater Analytical Results

Sample Date	Sample Location	Benzene ¹	Methane ¹
03/22/00	MPT-BQ-MW02	NA ²	0.797
	MPT-BQ-MW04	<1	5,930
	MPT-BQ-MW05	NA	2,637
	MPT-BQ-MW07	<1	0.32
06/27/00	MPT-BQ-MW02	NA	1,160
	MPT-BQ-MW04	<1	6,430
	MPT-BQ-MW05	NA	390
	MPT-BQ-MW07	<1	25.58
09/27/00	MPT-BQ-MW02	NA	8.16
	MPT-BQ-MW04	<1	2.91
	MPT-BQ-MW05	NA	1.99
	MPT-BQ-MW07	<1	1.33
12/14/00	MPT-BQ-MW02	NA	0.049
	MPT-BQ-MW04	<1	4,300
	MPT-BQ-MW05	NA	820
	MPT-BQ-MW07	<1	2
GCTL		1.0	
Natural Attenuation Default Source Concentration		100	

Notes:

¹ All concentrations are reported in micrograms per liter ($\mu\text{g/L}$).

² NA denotes sample not analyzed for specified compound.

TABLE 2-2
Groundwater Natural Attenuation Field Data

Well Identification	Sample Date	Carbon Dioxide (mg/L)	Alkalinity ¹ (mg/L)	Ferrous Iron (mg/L)	Nitrate (mg/L)	Sulfate (mg/L SO ₄ ²⁻)	ORP ² (mV)
MPT-BQ-MW02	03/22/00	700	850-1000	0.4	0.5	67	141
MPT-BQ-MW04	03/22/00	300	600	0.2	1.0	27	-314
MPT-BQ-MW05	03/22/00	140	300	0.6	0.5	80	33
MPT-BQ-MW07	03/22/00	205	280	0.8	1.0	80	-10
MPT-BQ-MW02	06/27/00	340	400	1.5	0.5	29	-15
MPT-BQ-MW04	06/27/00	300	340	0.2	0.5	39	-263
MPT-BQ-MW05	06/27/00	180	280	0.8	0.5	64	-38
MPT-BQ-MW07	06/27/00	320	300	1.5	0.5	80	-44
MPT-BQ-MW02	09/27/00	140	240	0.2	0.5	75	136
MPT-BQ-MW04	09/27/00	80	240	0.0	0.5	80	172
MPT-BQ-MW05	09/27/00	200	400	0.0	0.5	52	169
MPT-BQ-MW07	09/27/00	180	300	0.2	0.5	80	123
MPT-BQ-MW02	12/14/00	140	260	0.4	0.5	80	43
MPT-BQ-MW04	12/14/00	240	400	0.4	0.5	54	-273
MPT-BQ-MW05	12/14/00	280	400	0.6	0.0	41	20
MPT-BQ-MW07	12/14/00	160	300	0.4	0.5	80	76

Notes:

¹ Total Methyl Orange Alkalinity as milligrams per liter (mg/L) Calcium Carbonate (CaCO₃). Phenolphthalein alkalinity is zero.

² Oxidation/Reduction Potential (ORP) expressed in millivolts (mV).

TABLE 2-3
Groundwater Field Parameters

Well Identification	Sample Date	Depth to Water ¹	Depth to Product ²	Temperature (°C) ³	pH	Turbidity (NTU) ⁴	DO (mg/L) ⁵	Conductivity (mS/cm) ⁶
MPT-BQ-MW02	03/22/00	6.45	6.44 (<0.01")	20.4	6.58	549	2.88	0.744
MPT-BQ-MW04	03/22/00	8.30	8.29 (<0.01")	21.0	6.30	108	0.52	1.070
MPT-BQ-MW05	03/22/00	6.94	No Product	21.3	6.78	369	2.01	0.757
MPT-BQ-MW07	03/22/00	8.48	8.47 (<0.01")	21.1	6.66	470	1.96	0.828
MPT-BQ-MW02	06/27/00	6.85	6.84 (<0.01")	23.8	5.71	960	1.02	0.904
MPT-BQ-MW04	06/27/00	8.71	No Product	23.3	4.91	45	1.49	0.990
MPT-BQ-MW05	06/27/00	7.36	No Product	24.4	5.29	497	1.56	0.839
MPT-BQ-MW07	06/27/00	8.90	No Product	23.5	6.53	775	1.45	0.850
MPT-BQ-MW02	09/27/00	4.54	No Product	25.5	7.07	192	3.24	0.598
MPT-BQ-MW04	09/27/00	6.29	No Product	25.2	7.05	60	6.15	0.622
MPT-BQ-MW05	09/27/00	5.05	No Product	26.7	7.05	570	3.78	0.741
MPT-BQ-MW07	09/27/00	6.42	No Product	26.1	7.01	465	2.19	0.789
MPT-BQ-MW02	12/14/00	6.08	No Product	22.8	7.03	35	1.70	0.699
MPT-BQ-MW04	12/14/00	7.99	No Product	22.4	6.92	6	1.37	0.794
MPT-BQ-MW05	12/14/00	6.61	No Product	23.3	6.87	440	1.59	0.820
MPT-BQ-MW07	12/14/00	8.08	No Product	23.3	7.00	459	1.95	0.770

Notes:

- ¹ Depth to Water is measured as feet below top of well casing.
- ² Depth to Product is measured as feet below top of well casing.
- ³ Temperature expressed in degrees Celsius (°C).
- ⁴ Turbidity expressed in nephelometric turbidity units (NTU).
- ⁵ Dissolved oxygen (DO) expressed in milligrams per liter (mg/L).
- ⁶ Conductivity expressed in millisiemens per centimeter (mS/cm).

3.0 Conclusions and Recommendations

Benzene concentrations in the groundwater samples collected by CCI/J.A. Jones to date (March 22, 2000, June 27, 2000, September 27, 2000, and December 14, 2000) from monitoring wells MPT-BQ-MW04, the source area well, and MPT-BQ-MW07, the downgradient well, remain below the benzene GCTL of 1 microgram per liter ($\mu\text{g/L}$) as specified in FAC 62-770 Table I.

No Further Action Status with conditions, per FAC 62-770.680(2), is recommended for this site because of the following site conditions:

- The excavation of the petroleum-contaminated soil at the site was completed in accordance with the FDEP-approved RAP prepared by HLA.
- Based on the analytical results from confirmatory soil samples collected from the northeast and southeast excavation walls, excessively contaminated soil is not present in the northeast or southeast excavation wall directions.
- Soil exceeding the FAC 62-770 Table II, Direct Exposure I (residential) and Leachability SCTLs for TRPH remains in the northwest and southwest excavation wall directions; however, this soil does not exceed the FAC 62-770 Table I, TRPH GCTL based on SPLP TRPH analysis, which indicates the TRPH is not leachable.
- The northwest and southwest excavation walls are directly beneath the Building 1587 structure and stairwell, which provide an existing engineering control by capping these walls.
- Free product is not present at the site based on oil/water interface probe measurements from monitoring wells MPT-BQ-MW02, MPT-BQ-MW04, MPT-BQ-MW05, and MPT-BQ-MW07.
- Concentrations of benzene, the site groundwater COC, in the groundwater samples collected from monitoring wells MPT-BQ-MW04, the source area well, and MPT-BQ-MW07, the downgradient well, are below the benzene GCTL of 1 $\mu\text{g/L}$ as specified in FAC 62-770 Table I for the period of four consecutive groundwater sampling events.

In addition to the above recommendation, the Building 1587 site is recommended to be included into the NS Mayport Land Use Controls Memorandum of Agreement, dated August 31, 1998. A proposed Land Use Control Implementation Plan for inclusion into Appendix C of the NS Mayport Land Use Controls Memorandum of Agreement is included in Appendix B.

4.0 References

CH2M HILL Constructors, Inc. May 1999. Work Plan Addendum No. 01 to Furnish, Install, and Operate a Soil Vapor Extraction Trench System at Building 460 and Excavate Petroleum Impacted Soil at Building 1587, Naval Station Mayport, Mayport, Florida.

CH2M HILL Constructors, Inc. November 2000. Source Removal Report, Excavation of Petroleum Impacted Soil at Building 1587, Naval Station Mayport, Mayport, Florida.

Harding Lawson Associates. February 1999. Remedial Action Plan, Buildings 460 and 1587, Naval Station Mayport, Mayport, Florida.

Appendix A

Groundwater Analytical Laboratory Reports



Client Name: CH2M Hill
Contact: Jeff Wilmoth
Address: 115 Perimeter Center Plac

Atlanta, GA 30346

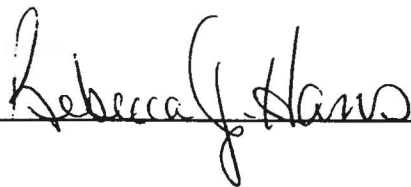
Page: Page 1 of 5
Order #: P0012174
Report Date: 01/04/01
Client Proj Name: Bldg 1587, N.S. Mayport
Client Proj #: 152097

Sample Identification

Lab Sample # Client Sample ID

P0012174-01	MPT-BQ-MW02
P0012174-02	MPT-BQ-MW04
P0012174-03	MPT-BQ-MW05
P0012174-04	MPT-BQ-MW07

Approved By:



Page: Page 2 of 5
Order #: P0012174
Report Date: 01/04/01
Client Proj Name: Bldg 1587, N.S. Mayport
Client Proj #: 152097

Client Name: CH2M Hill
Contact: Jeff Wilmoth

Lab Sample #: P0012174-01

Address: 115 Perimeter Center Plac
Suite 700
Atlanta, GA 30346

Sample Description

Matrix

Sampled Date/Time

Received

MPT-BQ-MW02

Water

14 Dec. 00 11:25

18 Dec. 00

Analyte(s)	Result	PQL	Units	Method #
<u>RiskAnalysis</u>				
Water				
Methane	0.049	0.015	ug/L	AM18

Page: Page 3 of 5
Order #: P0012174
Report Date: 01/04/01
Client Proj Name: Bldg 1587, N.S. Mayport
Client Proj #: 152097

Client Name: CH2M Hill
Contact: Jeff Wilmoth

Lab Sample #: P0012174-02

Address: 115 Perimeter Center Plac
Suite 700
Atlanta, GA 30346

Sample Description

Matrix

Sampled Date/Time

Received

MPT-BQ-MW04

Water

14 Dec. 00 10:10

18 Dec. 00

Analyte(s)	Result	PQL	Units	Method #
------------	--------	-----	-------	----------

RiskAnalysis

Water

Methane

4300

0.015

ug/L

AM18

Page: Page 4 of 5
Order #: P0012174
Report Date: 01/04/01
Client Proj Name: Bldg 1587, N.S. Mayport
Client Proj #: 152097

Client Name: CH2M Hill
Contact: Jeff Wilmoth
Address: 115 Perimeter Center Plac
Suite 700
Atlanta, GA 30346

Lab Sample #: P0012174-03

<u>Sample Description</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>	<u>Received</u>
MPT-BQ-MW05	Water	14 Dec. 00 10:55	18 Dec. 00

<u>Analyte(s)</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Method #</u>
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RiskAnalysis

Water				
Methane	820	0.015	ug/L	AM18

Page: Page 5 of 5
Order #: P0012174
Report Date: 01/04/01
Client Proj Name: Bldg 1587, N.S. Mayport
Client Proj #: 152097

Client Name: CH2M Hill

Lab Sample #: P0012174-04

Contact: Jeff Wilmoth

Address: 115 Perimeter Center Plac
Suite 700
Atlanta, GA 30346

Sample Description

Matrix

Sampled Date/Time

Received

MPT-BQ-MW07

Water

14 Dec. 00 12:05

18 Dec. 00

Analyte(s)	Result	PQL	Units	Method #
<u>RiskAnalysis</u>				
Water				
Methane	2.0	0.015	ug/L	AM18

CH2M Hill Constructors, Inc.

115 Perimeter Center Place, Suite 700

Atlanta, GA 30346-1278

Tel No (770) 604-9182 ; Fax No (770) 604-9282

CHAIN-OF-STUDY RECORD

COC1

2

152097-13

PROJECT NAME:	PROJECT NUMBER:	LAB NAME AND CONTACT:	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company)	RECIPIENT 1 (Address, Tel No., and Fax No.):
Bldg. 1587 N.S. Mayport	152097	MICROSEEPS, Inc. Rebecca Hans	Jennifer Zimmerman J.A Jones Env. Services	6219 Authority Ave. Building 1 Jacksonville, FL 32221 Ph:(904) 7774812 Fax: (904) 7774262
PROJECT PHASE/SITE/TASK:	CTO OR DO NUMBER:	LAB PO NUMBER:	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company)	RECIPIENT 2 (Address, Tel No., and Fax No.):
Bldg. 1587 - 4th Quarter GW Natural Attenuation	0015	1783	Jeff Wilmoth CH2M Hill Constructors, Inc.	115 Perimeter Center Place, N.E. Suite 700 Atlanta, GA 30346 Ph:(770)604-9182 Ext.561 Fax:604-9282
PROJECT CONTACT:	PROJECT TEL NO AND FAX NO:	LAB TEL NO AND FAX NO:	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company)	RECIPIENT 3 (Address, Tel No., and Fax No.):
David Garrity	Ph:(904)777-4812 Fax:(904) 777-4262	Ph: (412) 826-5245 Fax: (412) 826-3433		

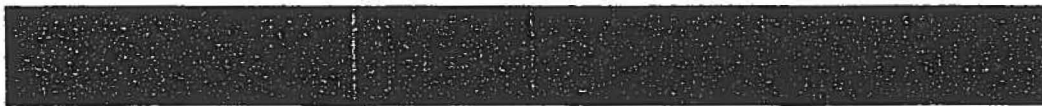
									ANALYSES REQUIRED (Include Method Numbers)										SAMPLE TYPE (see codes on back)	COMMENTS/ SCREENING READINGS	LAB ID
ITEM	SAMPLE IDENTIFIER	SAMPLE DESCRIPTION/LOCATION	MATRIX (see codes on back)	DATE COLLECTED	TIME COLLECTED	DATA PKG LEVEL (see codes on back)	TAT (calendar days)	Methane (\$015 Modified)													
1	015-BQMW02-Q4-00	MPT-BQ-MW02	W	12/14/00	11:25	III/C	14	2											Grab		
2	015-BQMW04-Q4-00	MPT-BQ-MW04	W	12/14/00	10:10	III/C	14	2											Grab		
3	015-BQMW05-Q4-00	MPT-BQ-MW05	W	12/14/00	10:55	III/C	14	2											Grab		
4	015-BQMW07-Q4-00	MPT-BQ-MW07	W	12/14/00	12:05	III/C	14	2											Grab		
5																					
6																					
7																					
8																					
9																					
10																					

SAMPLER(S) AND COMPANY: (please print)		COURIER AND SHIPPING NUMBER:		SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT:	
Randy Dumaop / Scott Sloan J.A. Jones Environmental Services		Federal Express TRK# 7919 2259 0155			
RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Printed Name and Signature:			Printed Name and Signature:		
R.Dumaop	12/14/00	17:30	Federal Express	12/14/00	17:30
Printed Name and Signature:			Printed Name and Signature:		
			M. Ashlaski	12/15/00	
Printed Name and S.			d Name and Signature:		



LEVEL IV DATA PACKAGE

SDG # MAY004



Prepared for
CH2MHill
by
STL Savannah Laboratories
Tallahassee, Florida



Chain-of-Custody Documentation

Laboratory Report

Data Deliverables

Purgeable Aromatics Method 602

Case Narrative

Forms

Analysis Log(s)

Calibration Data

Sample Data

QC Data



CHAIN-OF-CUSTODY DOCUMENTATION

LOG NO: T0-44153
Received: 15 DEC 00
Reported: 29 DEC 00Mr. Jeff Wilmoth
CH2M Hill
115 Perimeter Center Place NE 700
Atlanta, GA 30346

Client PO. No.: 1659

CC: Keith Conn

Project: CTO-015/Blg. 1587/152097

Sampled By: Client

Code: 171501229

Page 1

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#	
44153-1	015-BWMW04-Q4-00	12-14-00/10:10	MAY004	
44153-2	015-BQMW07-Q4-00	12-14-00/12:05	MAY004	
44153-3	015-BQ-EQB-Q4-00	12-14-00/11:35	MAY004	
44153-4	Trip Blank	12-14-00	MAY004	
PARAMETER	44153-1	44153-2	44153-3	44153-4
Purgeable Aromatics (602)				
Benzene, ug/l	<1.0	<1.0	<1.0	<1.0
Surrogate - a,a,a-Trifluorotoluene	73 %	86 %	94 %	85 %
Dilution Factor	1	1	1	1
Analysis Date	12.20.00	12.20.00	12.20.00	12.20.00
Batch ID	1219A	1219A	1219A	1219A

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

Method: EPA 40 CFR Part 136

Florida Dept. of Health Certification No.: E81005

FDEP CompQAP No. 890142G


Janet B. Pruitt, Project Manager

LOG NO: T0-MAY004
Received: 15 DEC 00
Reported: 17 JAN 01

Mr. Jeff Wilmoth
CH2M Hill
115 Perimeter Center Place NE 700
Atlanta, GA 30346

Client PO. No.: 1659

Project: CTO-015
Sampled By: Client
Code: 083210118

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED		SDG#	
MAY004-1	Method Blank			MAY004	
MAY004-2	Reporting Limit (RL)			MAY004	
MAY004-3	Lab Control Standard Result			MAY004	
MAY004-4	Lab Control Standard Duplicate Result			MAY004	
MAY004-5	Spike Amount Added, LCS/LCSD			MAY004	
PARAMETER	MAY004-1	MAY004-2	MAY004-3	MAY004-4	MAY004-5
Purgeable Aromatics (602)					
Benzene, ug/l	<1.0	1.0	18	24	20
Methyl t-butyl ether (MTBE), ug/l	<10	10	---	---	---
Surrogate -	81 %	---	88 %	82 %	---
a,a,a-Trifluorotoluene					
Dilution Factor	1	---	1	1	---
Analysis Date	12.19.00	---	12.19.00	12.21.00	---
Batch ID	1219A	1219A	1219A	1219A	1219A

SEVERN

TRENT

SERVICES

2846 Industrial Plaza Dr. • Tallahassee, FL 32301 • Tel: 850 878 3994 • Fax: 850 878 9504 • www.stl-inc.com

STL Tallahassee

LOG NO: T0-MAY004

Received: 15 DEC 00

Reported: 17 JAN 01

Mr. Jeff Wilmoth

CH2M Hill

115 Perimeter Center Place NE 700

Atlanta, GA 30346

Client PO. No.: 1659

Project: CTO-015

Sampled By: Client

Code: 083210118

Page 2

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
MAY004-6	Lab Control Standard % Recovery		MAY004
MAY004-7	Lab Control Standard Duplicate % Recovery		MAY004
MAY004-8	Precision (%RPD) of LCS/LCSD		MAY004
PARAMETER		MAY004-6	MAY004-7
			MAY004-8
Purgeable Aromatics (602)			
Benzene, %	90 %	120 %	28 %
Batch ID	1219A	1219A	1219A

0008

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TRENT
SERVICES

2846 Industrial Plaza Dr. • Tallahassee, FL 32301 • Tel: 850 878 3994 • Fax: 850 878 9504 • www.stl-inc.com

STL Tallahassee

LOG NO: T0-MAY004
Received: 15 DEC 00
Reported: 17 JAN 01

Mr. Jeff Wilmoth
CH2M Hill
115 Perimeter Center Place NE 700
Atlanta, GA 30346

Client PO. No.: 1659

Project: CTO-015
Sampled By: Client
Code: 083210118

REPORT OF RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#		
MAY004-9	Matrix Spike Result		MAY004		
MAY004-10	Matrix Spike Duplicate Result		MAY004		
MAY004-11	Spike Amount Added, MS		MAY004		
MAY004-12	Spike Amount Added, MSD		MAY004		
MAY004-13	Matrix Spike % Recovery		MAY004		
PARAMETER	MAY004-9	MAY004-10	MAY004-11	MAY004-12	MAY004-13
Purgeable Aromatics (602)					
Benzene, ug/l	23	23	20	20	115 %
Surrogate - a,a,a-Trifluorotoluene	94 %	98 %	---	---	---
Dilution Factor	1	1	---	---	---
Analysis Date	12.26.00	12.26.00	---	---	---
Batch ID	1219A	1219A	1219A	1219A	1219A

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Mr. Jeff Wilmoth
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115 Perimeter Center Place NE 700
Atlanta, GA 30346

Client PO. No.: 1659

Project: CTO-015
Sampled By: Client
Code: 083210118

REPORT OF RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
MAY004-14	Matrix Spike Duplicate % Recovery		MAY004
MAY004-15	Precision (%RPD) MS/MSD		MAY004
PARAMETER		MAY004-14	MAY004-15
Purgeable Aromatics (602)			
Benzene, %		115 %	0 %
Batch ID		1219A	1219A

Mr. Jeff Wilmoth
CH2M Hill
115 Perimeter Center Place NE 700
Atlanta, GA 30346

LOG NO: T0-MAY004
Received: 15 DEC 00
Reported: 17 JAN 01

Client PO. No.: 1659

Project: CTO-015
Sampled By: Client
Code: 083210118

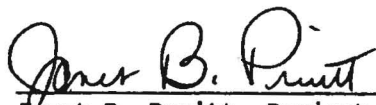
REPORT OF RESULTS

Page 5

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#	
MAY004-16	LCS Accuracy Control Limit (%R)		MAY004	
MAY004-17	LCS Precision Control Limit (Advisory) %RPD		MAY004	
MAY004-18	MS Accuracy Advisory Limit (%R)		MAY004	
MAY004-19	MS Precision Advisory Limit (%RPD)		MAY004	
PARAMETER	MAY004-16	MAY004-17	MAY004-18	MAY004-19
Purgeable Aromatics (602)				
Benzene, %	39-150 %	<31 %	39-150 %	<31 %
Surrogate - a,a,a-Trifluorotoluene	70-130 %	---	70-130 %	---
Batch ID	1219A	1219A	1219A	1219A

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

Method: EPA 40 CFR Part 136
Florida Dept. of Health Certification No.: B81005
FDEP CompQAP No. 890142G



Janet B. Pruitt, Project Manager

CASE NARRATIVE - ORGANICS
Volatile Organic Aromatics

STL SDG No: MAY004

STL Log No(s): T044152, T044153

Client Project ID: CTO-015/N.S. MAYPORT/BLDG NO. 460 AND 1587/4TH QUARTER GW

I RECEIPT

No exceptions were encountered unless an Anomaly Report is attached to the Chain-of-Custody included with this data package.

II HOLDING TIMES

A. Sample Preparation: All holding times were met.

B. Sample Analysis: All holding times were met.

III METHOD

Preparation: SW-846: Method 5030

Analysis: SW-846: Method 8260

IV. PREPARATION

Sample preparation proceeded normally.

V. ANALYSIS

A. Calibration: All acceptance criteria were met.

B. Blanks: All acceptance criteria were met.

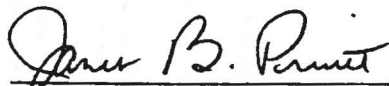
C. Spikes: All QC criteria were met.

D.

E. Surrogates: All QC criteria were met.

F. Samples: No analytical or quality problems were observed.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and STL, Inc. both technically and for completeness, except for the conditions noted above.



Janet B. Pruitt
Project Manager
STL Tallahassee

Date: January 17, 2001

115 Perimeter Center Place, Suite 700
Atlanta, GA 30346-1278
Tel No (770) 604-9182; Fax No (770) 604-9282

COC NUMBER

152097-11



PROJECT NAME:	PROJECT NUMBER:	LAB NAME AND CONTACT:	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company)	RECIPIENT 1 (Address, Tel No. , and Fax No.):
Bldg. 1587 N.S. Mayport	152097	STL (Tallahassee, FL) Janet Pruitt	Jennifer Zimmerman J.A Jones Env. Services	6219 Authority Ave. Building 1 Jacksonville, FL 32221 Ph:(904) 7774812 Fax: (904) 7774262
PROJECT PHASE/SITE/TASK:	CTO OR DO NUMBER:	LAB PO NUMBER:	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company)	RECIPIENT 2 (Address, Tel No. , and Fax No.):
Bldg. 1587 4th Quarter GW	0015	1659	Jeff Willmoth CH2M Hill Constructors, Inc.	115 Perimeter Center Place, N.E. Suite 700 Atlanta, GA 30346 Ph:(770)604-9182 Ext.561 Fax:604-9282
PROJECT CONTACT:	PROJECT TEL NO AND FAX NO:	LAB TEL NO AND FAX NO:	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company)	RECIPIENT 3 (Address, Tel No. , and Fax No.):
David Garrity	Ph:(904)777-4812 Fax:(904) 777-4262	Ph: (850) 878-3994 Fax: (850) 878-9504		

[illegible]

Randy Dumaop / Scott Sloan
J.A. Jones Environmental Services

Federal Express TRK# 7926 5178 8612

SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT:	
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RELINQUISHED BY		DATE	TIME	RECEIVED BY		DATE	TIME
Printed Name and Signature:				Printed Name and Signature:			
R. Dumaop 		12/14/00	17:30	Federal Express		12/14/00	17:30
Printed Name and Signature:				Printed Name and Signature:			
				 77 7044153		12/14/00	17:20

Appendix B

Proposed Land Use Control Implementation Plan

Building 1587
U.S. Naval Station (NAVSTA), Mayport, Florida

1. Site Description: Diesel fuel from a 4,000-gallon underground storage tank (UST) used to heat Building 1587, the Bachelor's Enlisted Quarters (BEQ), contaminated subsurface soils at the site. In April 1995, the UST was removed with 27.11 tons of excessively contaminated soil. An estimated total of 25 tons of excessively contaminated soil remained at the site following the UST removal. A new 4,000-gallon double-walled UST and dispensing system were installed in July 1995 and put into service in August 1995. Harding Lawson Associates (HLA) conducted additional contamination assessment activities and prepared a Remedial Action Plan (RAP) in 1999.

An excavation to remove and dispose of petroleum-contaminated soil remaining following the initial UST removal was performed in accordance with the RAP (HLA, 1999) in November and December 1999. Post-excavation confirmation soil sampling identified total recoverable petroleum hydrocarbon- (TRPH) contaminated residual soils on the northwest (beneath the stairwell) and southwest (beneath the Building 1587 structure) excavation sidewalls. This soil was not removed due to concerns regarding undermining the Building 1587 and stairwell foundations. Building 1587 with the stairwell serves as an engineering control and prevents contact of the petroleum-contaminated soil by human and ecological receptors.

2. Site Location: Building 1587 is a BEQ located in the northeast section of NAVSTA Mayport, east of the Turning Basin, and at the west end of Biltmore Avenue near the intersection of Baltimore Street and Bailey Avenue. The location is shown on Figure 2-3 (attached) of the RAP, Buildings 460 and 1587, U.S. Naval Station, Mayport, Florida (HLA, 1999).

3. Land Use Control (LUC) Objective(s): Building 1587 is anticipated to exist as a BEQ in its present condition for the foreseeable future. No Further Action with conditions for remedial activities is warranted because of engineering controls over the remaining petroleum-contaminated soil at the site; the demonstration that the remaining petroleum-contaminated soil is not an ongoing source of groundwater contamination; and the demonstration that the groundwater contaminant levels are below the Florida Administrative Code Chapter 62-777 (FAC 62-777), Groundwater Cleanup Target Levels (GCTLs). The land use control is based on petroleum-contaminated soil that exceeds FAC 62-777, Direct Exposure I (residential) and Leachability Soil Cleanup Target Levels (SCTLs) remaining directly beneath the Building 1587 structure and stairwell.

4. LUC Implemented to Achieve Objective(s): Notation in the Station's geographic information system designating the site as the location of a land use control. Quarterly inspections by the Public Works Office-Environmental Division of the Building 1587 structure and stairwell to confirm the site conditions have not been modified. If the building structure or stairwell is removed, the remaining petroleum-contaminated soil shall be removed and disposed.

5. Decision Documents: Below are the Building 1587 decision documents.

HLA, 1999. Remedial Action Plan, Buildings 460 and 1587, U.S. Naval Station, Mayport, Florida.

CH2M HILL Constructors, Inc. (CCI), 1999. Work Plan Addendum No. 01 to Furnish, Install, and Operate a Soil Vapor Extraction Trench System at Building 460 and Excavate Petroleum Impacted Soil at Building 1587, Naval Station Mayport, Mayport, Florida.

CCI, 2000. Source Removal Report, Excavation of Petroleum Impacted Soil at Building 1587, Naval Station Mayport, Mayport, Florida.

CCI, 2001. Quarterly Monitoring Report, Groundwater Monitoring at Building 1587, 4th Quarter 2000, October 1-December 31, 2000, Naval Station Mayport, Jacksonville, Florida.

6. Other Pertinent Information: HLA prepared a RAP in February 1999 that identified excavation to address petroleum-contaminated soil and natural attenuation to address groundwater contamination. The constituents of concern at the site included: for soil, benzo(a)anthracene and TRPH; for soil leaching, total xylenes and TRPH; and for groundwater, benzene.

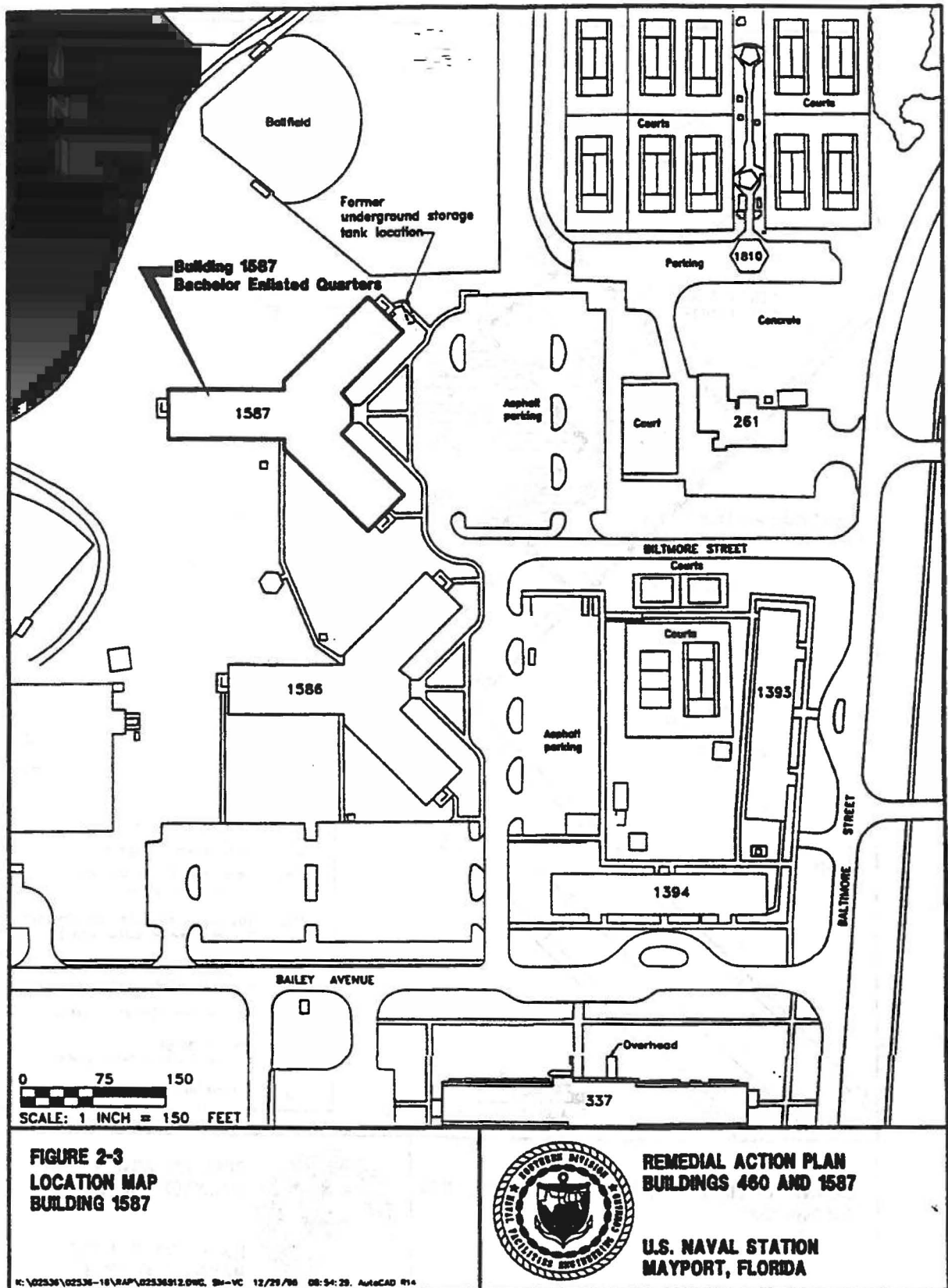
CCI/J.A. Jones Environmental Services Company (J.A. Jones) excavated the area of petroleum-contaminated soil from November 29, 1999 to December 15, 1999, and removed and disposed of 19.85 tons of petroleum-contaminated soil. Post-excavation confirmation sampling identified soil exceeding FAC 62-777, Direct Exposure I (residential) and Leachability SCTLs on the northwest and southwest sidewalls at a depth of approximately 7 feet below land surface. This soil was not removed due to concerns regarding undermining the Building 1587 foundation. The soil exceeding FAC 62-777, Direct Exposure I (residential) and Leachability SCTLs was then analyzed by the Synthetic Precipitate Leaching Procedure (SPLP), and SPLP analytical results showed contaminants in the soil are not leaching into the groundwater based on the analytical results not exceeding FAC 62-777, GCTLs.

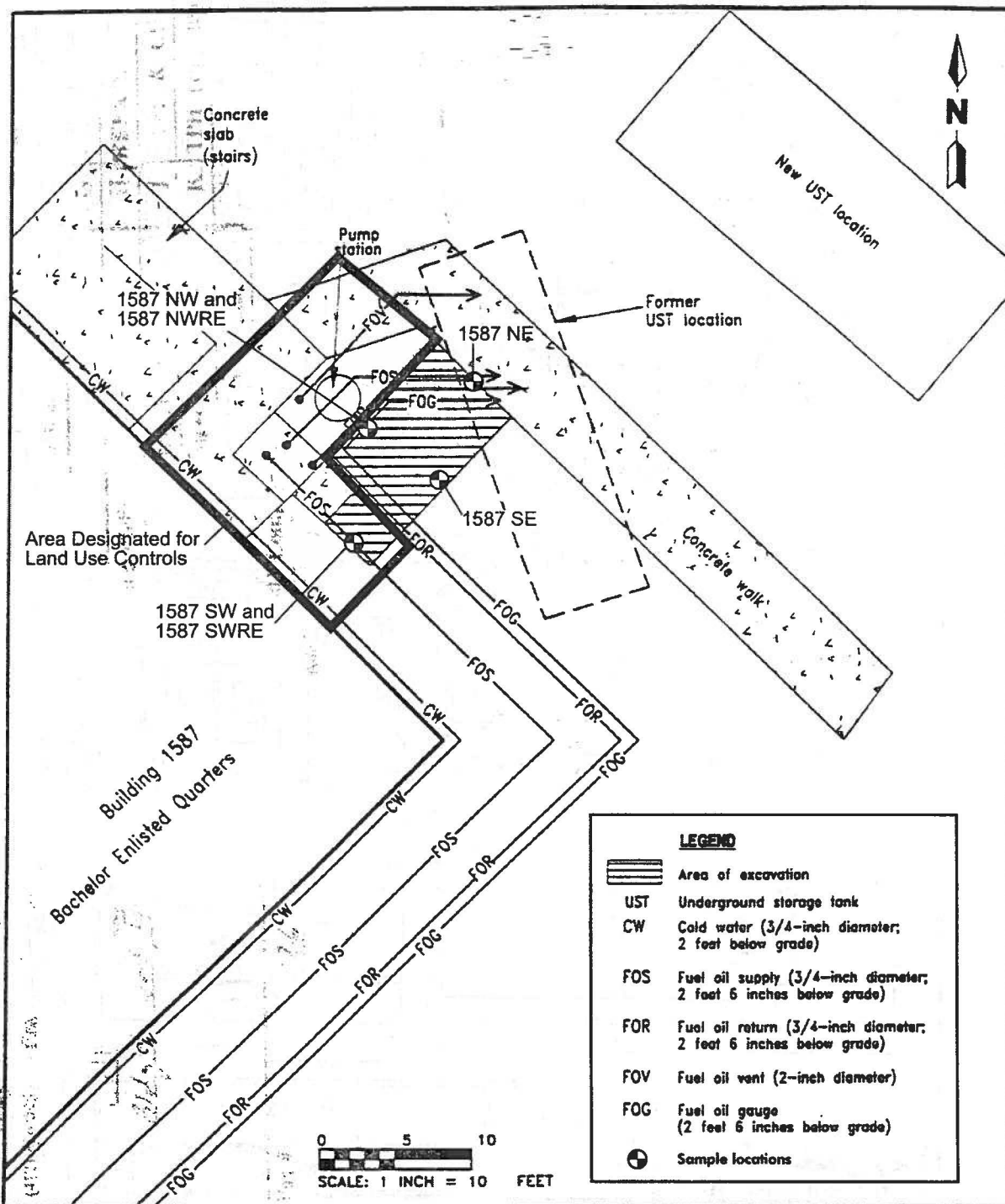
CCI/J.A. Jones conducted quarterly groundwater monitoring activities at Building 1587 from January to December 2000. Groundwater samples were collected from monitoring wells MPT-BQ-MW04, the source area monitoring well, and MPT-BQ-MW07, the downgradient monitoring well, and laboratory analyzed for benzene by United States Environmental Protection Agency Method 602. Benzene concentrations in each of the collected groundwater samples were below the benzene GCTL of 1 µg/L as specified in FAC 62-777.

No Further Action Status with conditions, per FAC 62-770.680(2), was recommended for the Building 1587 site because of the following site conditions:

- Soil exceeding the FAC 62-777, Direct Exposure I (residential) and Leachability SCTLs remains in the northwest and southwest excavation wall directions; however, this soil does not exceed the FAC 62-777, GCTLs based on SPLP analysis. This indicates the contaminants in the soil are not leaching to the groundwater.
- The northwest and southwest excavation walls are directly beneath the Building 1587 structure and stairwell which provide engineering controls preventing contact of the petroleum-contaminated soil by human and ecological receptors.
- Free product is not present at the site.

FINAL DRAFT





**EXCAVATION LIMITS WITH LAND USE CONTROL AREA
BUILDING 1587**



**REMEDIAL ACTION PLAN
BUILDINGS 460 AND 1587**

**U.S. NAVAL STATION
MAYPORT, FLORIDA**

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